The Comoros’ Islands contribution

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The Comoros’ Statistics

- 4 volcanic island archipelago in north access of Mozambique Channel, Indian Ocean
- 400km to the northwest of the Madagascar Island
- 300km to the East Cost of Africa
- Tropical marine climate
- Population: ~750,000
- Official languages: Arabic, French
- Capital: Moroni
- Per capita GDP: $600
- The Comorian franc (Kmf), 1Euro=491Kmf
- Major exports: vanilla, cloves, essential oils
- Major gov’t focus on tourism development
Where are the Comoro Islands?
The Comoros Islands map
<table>
<thead>
<tr>
<th>Islands</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grande Comore (Ngazidja)</td>
<td>1,148 km²</td>
</tr>
<tr>
<td>Anjouan (Ndzuwani)</td>
<td>424 km²</td>
</tr>
<tr>
<td>Moheli (Mwali)</td>
<td>290 km²</td>
</tr>
<tr>
<td>Mayotte (maore)</td>
<td>308 km²</td>
</tr>
</tbody>
</table>
Existing power energy sources

- Grand Comore 12 diesel generators 11,670 KW
- Moheli 6 diesel generators 1,200 KW
- Anjouan 6 diesel generators 3,780 KW
- Hydro not operational
- Solar not available
- Total installed capacity 24,955 KW
- Total available capacity 16,650 KW
- Losses in transmission and distribution are high 48%
- Electricity demand gas increased at a much faster pace than the GDP and the population of the Comoros.
In terms of energy use, it is estimated that biomass (wood and charcoal) currently makes up to 70% of energy use in the Comoros.

30% of the total energy consumption are used as fuel in transportation and electricity.

As a small island state, the Comoros faces inherent difficulties in fuel transportation and lacks economies of scale for power generation.

Access to the electricity grid in the Comoros is above 50%:
- 60% in Grand Comore,
- 20% in Moheli,
- 50% in Anjouan.

However, users get unreliable electricity for most of the day.
Energy sector II

- As of 2013, the total installed capacity in the three islands was in the order of 25MW composed by diesel-based generation (99.6%) and hydor-based (0.04%)
Electricity Tariffs in the Comoros

- Domestic usage (low voltage) $0.36
- Industrial usage (Medium voltage) $0.28
- The average electricity tariff $0.33
- Average tariff is high compared to most Sub-Saharan countries
Renewable Energy Potential I

- **Geothermal.** Geologically, the Comoros should have the potential to meet all its energy demands from its volcanic activities.
- Recent pre-feasibility studies prepared by a Kenyan and New Zealand firms are indicative of a greater geothermal potential.
- The Government is seeking funds for the establishment of a suitable framework for exploitation.
Karthala is the greatest crater all over the world.

Ngazijda (Grand comore), Maore (Mayotte) have active volcanoes

Grande Comore is dominated by Karthala, Massif de la Grille volcanoes, a potential that can meet the countires power demand
Renewable Energy Potential II

- **Hydropower.** The Comoros have an old hydro installation of approximately 0.1MW in Anjouan but it is out of order due to poor maintenance.
- According to AfDB, the Comoros has a high hydro potential.
- Rehabilitation and financing is required, a feasibility study is available.
- **Solar.** The Comoros is exposed to 8h per day of sunlight (2,880 hours/year) at an average of 5.0 kw p/m2.
- **Wind.** Studies are required.
- **Biomass.** Oilseed plants such as coconut, sesame, and jatropha grow in the Comoros but no in-depth studies have been conducted.
Major economic activities

- Agriculture contributes 40% to the Comoros GDP. It employs 80% of the workforce and provides most of its exports, essential oils, vanilla and spices.
- Ylang-Ylang essential oil production is an integral part of the country’s economy, heritage, and culture.
- Ironically, it is also an important destructive factor of its forest and responsible for a huge portion of its greenhouse gas emissions.
- Wood is used as energy in the distillation process of essential oils.
Ylang-Ylang distillery
Fishing and tourism

- As an islands nation fisheries is also major activity but lack of reliable and stable energy, there’s no any transformation or conservation industries
- Tourism could also be a major income sector but with the reason mentioned above and lack if infrastructure tourism is underdeveloped
Tourist spots
Energy projects available

- Report on a hydroelectricity project in the island of Anjouan
- Pilot project for wind turbine and solar panels in Moheli and Grand Comore
- Pilot project using renewable energy for the distillation of Ylang-Ylang oil and drying spices
- Geothermal proposition project

Despite the potential resources of renewable energies, access to the billions of dollars available are glimmer of a candle.

We have projects available, we need concrete proposals with less bureaucratic procedures.
Conclusion

The Comoros is a small island state with a reasonable need of energy around, 25MW.

The island of Mohel would only need one wind turbine of 1.5 MW to make it 100% a green island.

Turning the islands to green will be important to the Comoros economy and social sector.

The Comoros have several energy potentials that can make the whole country and its economy green and protect its environment.

Its geothermal potential is sufficient for the whole country but access to funds is a major problem.

We need to act now, climate change is real and affecting SIDS it is not science fiction.
THANK YOU